[Substitute Pages 1 and 2]

PCT/EP00/03634
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8571. PT-WO
HJM/Nj

"Sound Shielding Element, Use thereof and Method of Producing the same"

The present invention relates to a sound shielding element for protection from the propagation of sound from the noise area of a room or space into a neighbouring room or space or for covering sound-reflecting or sound-generating structural parts, comprising at least one panel or layer containing many small perforations, as well as to a method of producing same and to applications thereof.

Such a shielding element is known already (US Patent A-s5 196 253, European Patent EP-A-0 341 652, German Utility Model U-93 01 234 and German Patent DE-A-1 180 155). The strong noise generated by the automotive engine or by tyres, air flows and other units causing noise is attenuated by such so-called "sound absorbers" when it enters into the passenger compartment when it is emitted into the environment. Other known sound absorbers present chamber-like interior spaces so that the entering sound waves are largely attenuated by resonance effects. Apart from these chamber-type absorbers also such sound absorbers are known which consist of porous materials such as foams or nonwoven fabrics. Moreover, so-called film and membrane absorbers are known wherein a thin layer formed as film or sheet is caused by

the sound waves to vibrate so that, as a result, an energy loss occurs in the sound wave and the sound wave is attenuated.

It is furthermore known (cf. German Patent 43 15 759-C) to dispose a transparent glass or plastic panel having a thickness between 2 and 30 mm at a spacing in front of a sound-reflecting wall or ceiling of a large assembly hall, which panel is provided with circular holes having a diameter of 0.2 to 2 mm and a spacing of 2 to 20 mm between the holes. Such glass attachment shells are not easily useful for smaller spaces and particularly in motor vehicles.

The present invention is based on the problem of improving a shielding element of the general type mentioned by way of introduction in a way that, being simple to produce, it requires only little space and is suitable for being mounted at many locations e.g. in a motor vehicle or replaces common automotive mounting parts, respectively, or can be mounted thereon without a major loss of space. The shielding element should, however, be applicable not only as mounting part in motor vehicles but also for other purposes.

The invention is characterised in the Claims 1 and 2. Accordingly, the sound shielding element comprises at least one panel or layer having a thickness of layer between 0.01 and 50 mm, particularly between 0.05 and 4 mm. Its perforations present an average diameter or an average width between 0.001 and 2 mm, particularly 0.01 and 0.7 mm, and a hole or perforation surface share, related to the total surface of the mounting parts - also referred to as hole/surface ratio" - between 0.001 and 20 %, particularly between 0.01 and 5 %, including the range 0.1 - 3 %, for instance.